
Effects of News Events on Response to a Breast Cancer Screening Program

RAYMOND FINK, PhD
RUTH ROESER, MA
WANDA VENET, RN
PHILIP STRAX, MD
LOUIS VENET, MD
MORTIMER LACHER, MD

DESPITE RECENT SETBACKS IN PROGRAMS of mass screening and immunization, there is good evidence that such efforts may continue to make significant contributions to public health and early disease detection. There is, for example, little debate about the value of mammography in the mass screening of women 50 years of age and older. Also, screening for hypertension has become commonplace throughout the country. These disease detection efforts may become the prototype of future mass screening programs, many of which are likely to continue over time and require repeated screening visits.

During the past several years, widely publicized events have occurred that may have significantly affected mass screening and disease immunization programs. These events include the dramatic breast surgery of the wives of the nation's President and Vice President and the strong and open public debate that ensued a year and a half later as to the value of mammography. More recently, participation in the swine influenza vaccination program appeared to wax

as possible new swine influenza cases were reported and to wane when severe reactions were reported to the vaccine itself.

Opportunities to examine the effects of widely publicized events on participation in mass screening programs have been severely limited by the nature of the programs and the methodological limitations under which most of them operate. Programs for poliomyelitis vaccination and swine influenza vaccination, for example, tend to become public events in themselves and cannot be studied in a controlled context. Moreover, most screening and immunization programs encourage self-selection by offering the screening or immunization on a first come, first served basis to those who volunteer. This process places severe limitations on any analysis of the effects on participation of specific events.

The most serious handicap in measuring the effect of widely publicized events on mass screening participation rates, however, is the uncontrolled nature of the news reports of most of these events and the way that the news media present them to the public. In commenting on the role of mass communications in cancer control, Mendelsohn called attention to the complicated relationship between messages from the mass media and their intended effects upon their audience (1). He pointed out that campaigns designed to supply information to the public or specific segments of it must have well-defined, middle-range goals if they are to alter health behavior. Unanticipated, unplanned events are likely to be reported in diverse ways—as news, as public information, and as documentaries. In a “natural” experiment, one is unprepared for the event. Its effects can only be captured with the instruments on hand and with severely limited hypotheses.

It is therefore not surprising that little empirical

Dr. Fink, who now is a professor of community and preventive medicine at New York Medical College, at the time of the study was director of research and statistics, Health Insurance Plan of Greater New York (HIP). Mrs. Roeser is a HIP research associate, and Mrs. Venet is director of operations of HIP's mammography study. Dr. Strax is director of radiology, LaGuardia Hospital; Dr. Venet is associate director of surgery, Beth Israel Medical Center; and Dr. Lacher is associate attending physician, Memorial Sloan-Kettering Cancer Center; all are in New York City.

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work has been done to measure the effect of publicized events on the rates of participation in mass screening and immunization programs. Rather, what is generally available are well-documented descriptions of the participants in such programs and how these people may differ from those who do not participate (2, 3). In the breast cancer screening studies conducted by the Health Insurance Plan of Greater New York (HIP), research on participation has centered on the effects of direct efforts to contact potential screenees by mail and telephone (4, 5). The results have paralleled those of other studies showing that the women most likely to participate in breast cancer screening tend to be younger, to be better educated, to have higher family incomes, and to be more involved in the health programs of their medical groups.

The breast surgery of the President's wife on September 27, 1974, and of the Vice President's wife on October 10, 1974, drew public attention to breast cancer at a time when a breast cancer research program was underway in HIP. Thus, an opportunity was presented to measure participation in HIP's breast screening program before, during, and after these famous operations and to compare the characteristics of the screenees during different periods of the research program. We therefore explored the effects of the September and October 1974 events on participation rates, on the efforts required to gain participation, and on the distribution of the demographic characteristics of the women who were screened.

Research Design

In December 1973, the Health Insurance Plan of New York initiated a program of research aimed at determining the role of thermography in the breast cancer screening of large populations. HIP is a prepaid, comprehensive medical care program with about 740,000 members, who are served by 28 multispecialty medical groups located in the five boroughs of New York City and in Nassau and Suffolk Counties on Long Island. HIP membership includes a broad spectrum of ethnic and socioeconomic groups. Plan members, in return for a premium, are entitled to receive comprehensive medical care from physicians associated with the affiliated medical groups. Coverage is for preventive, diagnostic, and therapeutic services provided in the medical group's office, the patient's home, or the hospital.

The HIP study on thermography was conducted on a random sample of women 45-64 years of age, drawn from the women enrolled in the 28 medical

groups affiliated with HIP. Women who had been in the study or control groups of a HIP mammography study that began 10 years earlier were excluded from the sampling universe. The remaining women available for sampling totaled about 80,000. Samples were drawn from all 28 medical groups. Women in the samples were assigned numbers randomly so that they would enter the study in random order. This procedure assured that a representative sample of women would enter the study during any given period and permitted comparisons to be made of results at different points in time.

Three screening centers for the research program were established in area hospitals: at Beth Israel Medical Center in Manhattan for women residing in Manhattan and the Bronx, at LaGuardia Hospital in Queens for women residing in Queens and in Nassau and Suffolk Counties, and at Brookdale Medical Center for women residing in Brooklyn and Staten Island. Because the screening of women from Brooklyn and Staten Island did not begin until January 1975, data from the Brookdale Medical Center are not included in this report.

In a screening session of approximately 4 hours, held in the evening or on Saturdays, between 30 and 35 women could be screened. Screening procedures included first a thermogram, followed by a mammogram and a clinical examination by a physician. Also, an extensive interview was conducted, in which information was obtained on the screenee's demographic characteristics, parity, health history, and family's history of cancer.

Contacting prospective screenees. Three weeks before a scheduled screening examination, each prospective examinee was sent a letter describing the nature and purpose of the examination and informing her of the day when the examination was being offered to her. A post card was enclosed on which the woman was to check off the time of day she preferred for her appointment. Appointments were subsequently confirmed by a post card from the study office. If there was no response from a woman within 10 days, a second letter was mailed. Women not responding to either letter were sent a third, offering them another screening date. Those not responding to the mailings were telephoned if a number for them could be located. Occasionally women were telephoned after only two letters had been sent if the response rate for a session seemed to lag. Participants were classified according to the number of letters mailed to them—one, two, or three. Women who were telephoned after two or three letters had

been sent were generally classified according to the number of letters sent before they responded.

It is difficult to document the degree or the kind of publicity given to the medical events involving Mrs. Ford and Mrs. Rockefeller and to breast cancer in general. However, television, newspapers, radio, and news magazines put considerable emphasis on the women's stories over a period of 2 to 3 months. It is also difficult to document the content of the coverage in the news, in documentaries, and in informational programs. Television networks and stations presented reports on the conditions of Mrs. Ford and Mrs. Rockefeller, programs on breast self-examination, and information on other methods of early detection of breast cancer (including mammography and thermography). Consequently, no clear hypotheses can be put forth as to the kinds of effects that might have been generated by the sudden and continuous attention given by national and local media to breast cancer. In this report, only two of the possible effects are described, namely, changes in the rates of women's participation in screening for breast cancer and changes in the effort required to induce their participation.

Plan for the analysis. All study measures were taken from the date of a woman's entry into the study. This date was almost always defined as the one on which the potential screenee had been initially invited to appear for an examination. Generally, this date was 3 weeks after the first letter had been mailed to her. The date of entry was used even if the woman was examined at some later date; in other words, the date used was the one that came closest to the date when she received the first letter informing her of the screening program. During the period under study, 80 percent of the women screened at the LaGuardia and Beth Israel centers were screened in the same quarter as their date of entry.

In general, dates of entry were grouped by quarter years. Women with a date of entry in December 1973 were combined with women having a date of entry in the first quarter of 1974 to reduce the number of categories for analysis. Information on participation rates was available for six periods from December 1973 through June 1975. Information for these periods was also available on the effort that was required to gain the women's response and on the age and medical group at time of entry into the study of the women contacted for screening. Demographic information obtained at the screening sessions was available for only five periods; it was not

available for the quarter from April through June 1975.

The major focus of our analysis, of course, was on the last quarter of 1974, when the national and local attention given to breast cancer could have been expected to have the greatest impact on participation in the screening program. We also made an effort, however, to look at trends extending beyond this period.

Results of Analysis

Participation by period of entry into study. From December 1973 through June 1975, 24,117 women were invited to be screened in the HIP thermography study, and 11,095, or 46.0 percent of those eligible, were screened. Participation was generally below 50 percent until October 1974, when it reached 53 percent. Participation was highest in November 1974—57 percent—and in December 1974—51 percent (see chart). In subsequent months, participation at the two screening centers at Beth Israel Medical Center and LaGuardia Hospital was 50 percent or lower. The pattern of increased participation during the period of high public attention to breast cancer is also apparent during specific study periods. Dur-

Monthly rate of participation in HIP breast cancer screening program by screening center, December 1973–June 1975

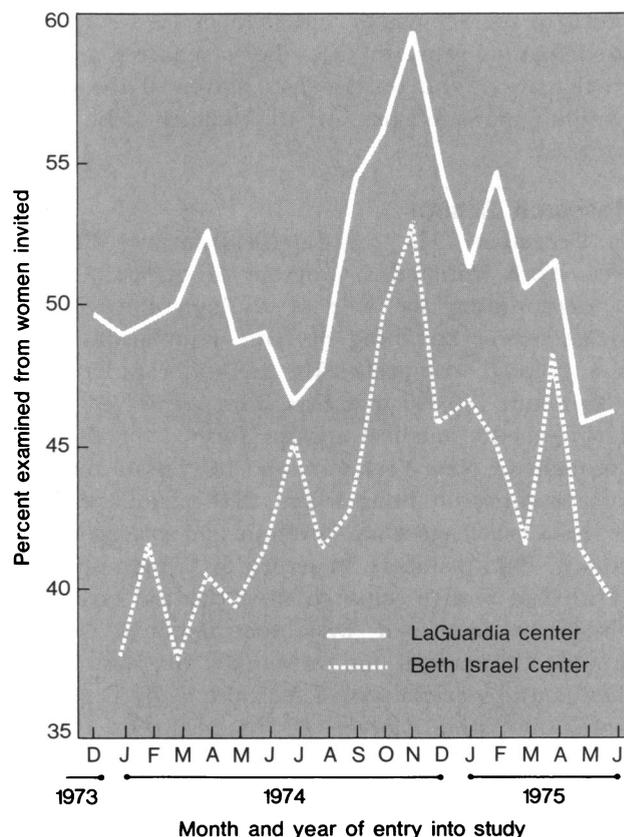


Table 1. Rate of women's participation in HIP breast cancer screening program, by time of entry into study and screening center, December 1973–June 1975

Time of entry into study	La Guardia center		Beth Israel center		Both centers	
	Number Invited	Percent screened	Number Invited	Percent screened	Number Invited	Percent screened
December 1973–March 1974	1,680	50	1,899	39	3,579	44
April–June 1974	2,410	50	3,359	40	5,769	44
July–September 1974	2,171	49	2,102	43	4,273	46
October–December 1974	1,012	57	884	50	1,896	54
January–March 1975	1,490	52	1,534	44	3,024	48
April–June 1975	2,363	48	3,213	43	5,576	45
Total	11,126	50	12,991	42	24,117	46

ing the fourth quarter of 1974, participation was 54 percent, compared with 46 percent in the previous quarter and 48 percent in the following quarter (table 1). Thus, the increase in participation appears to have been only temporary, occurring primarily during the period of concentrated public attention on breast cancer.

During the last quarter of 1974, fewer women entered the study than in the other quarters under study—1,012 compared with 2,171 in the preceding quarter and 1,490 in the following quarter. The reason was that the year's end had been planned to provide a final opportunity for screening to (a) those women contacted but not screened in the early study periods and (b) those women who had had only partial examinations because of equipment failures. These supplemental screening sessions had been planned before the mastectomies of Mrs. Ford and Mrs. Rockefeller became known. The sampling procedure in the last quarter of 1974 was no different from that of other periods. Nor did the efforts made to contact the women who entered the study during this period differ in any way from those made in other periods, even though the women entering the study were fewer in number. In this quarter, 1,574

women were completely or partially screened, as compared with 1,793 in the third quarter of 1974 and 1,264 in the first quarter of 1975.

Participation by age group and period of entry into study. Participation rates for the various age groups in the study were calculated for each of the six study periods. In general, they increased for all age levels during the last quarter of 1974 (table 2). Among women 45–49 years old, for example, there was an increase of 8 percent over the previous quarter, to a rate of 54 percent. Among older women 60–64 years, the participation rate increased 6 percent over the previous quarter, to 51 percent. No age group, however, appeared to show a greater rate of increased participation during this period than any other age group.

Participation by distance from screening center. A rough classification of a woman's distance from the screening center was developed by putting the women invited to the LaGuardia Center who resided in Queens in one group and those residing in the more distant Nassau and Suffolk Counties in another group and by putting the women invited to the Beth Israel Center who lived in Manhattan in one group

Table 2. Rate of women's participation in HIP breast cancer screening program, by time of entry into study and age group, December 1973–June 1975

Time of entry into study	45–49 years		50–54 years		55–59 years		60–64 years		Total	
	Number Invited	Percent screened								
December 1973–March 1974	1,455	44	848	44	719	41	557	47	3,579	44
April–June 1974	2,320	46	1,446	43	1,088	44	915	42	5,769	44
July–September 1974	1,712	46	1,026	47	859	45	676	45	4,273	46
October–December 1974	767	54	469	55	382	55	279	51	1,897	54
January–March 1975	1,232	49	781	51	570	45	440	43	3,023	48
April–June 1975	2,143	44	1,408	47	1,135	46	890	45	5,576	45
Total	9,629	46	5,978	47	4,753	45	3,757	45	24,117	46

Table 3. Rate of women's participation in HIP breast cancer screening program, by time of entry into study, screening center, and residence, December 1973–June 1975

Time of entry into study	La Guardia center				Beth Israel center			
	Queens		Nassau-Suffolk		Manhattan		Bronx	
	Number invited	Percent screened	Number invited	Percent screened	Number invited	Percent screened	Number invited	Percent screened
December 1973–March 1974	1,204	53	476	40	898	40	1,001	39
April–June 1974	1,679	53	731	43	1,584	42	1,775	39
July–September 1974	1,518	52	653	42	1,011	44	1,091	43
October–December 1974	705	59	307	52	396	48	488	51
January–March 1975	1,022	54	468	48	713	44	821	45
April–June 1975	1,614	50	749	44	1,480	42	1,733	44
Total	7,742	53	3,384	44	6,082	43	6,909	42

NOTE: Residents of Queens and Manhattan were nearer to their screening center than residents of Nassau and Suffolk Counties or the Bronx.

and those who lived in the more distant Bronx in another group. The aim of this part of the analysis was to determine whether the increased attention directed at breast cancer during late 1974 tended to increase participation rates differentially among women residing near the screening center as compared with those residing further away.

The overall participation rate for the six study periods was higher for women living in Queens, closer to the LaGuardia Center, than for women living in Nassau or Suffolk Counties—53 percent as compared with 44 percent (table 3). The overall participation rate among Manhattan women and Bronx women was about the same—43 percent for Manhattan women and 42 percent for Bronx women. During late 1974, the participation rates for women in all four areas were 4 to 10 percent higher than in the previous study period. Women living further from the screening centers showed some tendency toward greater participation in late 1974 than in the preceding quarter, but the difference was not large.

Participation in relation to efforts to induce it. Among the approximately 11,000 women who were screened, 45 percent participated in response to only a single letter and 29 percent in response to two letters; 25 percent required three letters or three letters followed by telephone calls to gain their participation (table 4). The extent of the effort required to gain participation differed significantly by study period. In the period December 1973 through March 1974, 51 percent of those who were examined had received only one letter. In the two subsequent periods, the proportion of women invited who were screened after receiving only a single letter continued to increase—from 49 percent in the first quarter of 1975 to 52 percent in the second quarter

of 1975. These results indicate that the women might have become more sensitive to letters inviting them to be screened, probably because of the increased attention given to breast cancer by the mass media.

Participation in relation to screenees' demographic characteristics. The distributions of the participants' demographic characteristics in each study period were compared. Because the sample for each study period was drawn at random, it was assumed that changes in the characteristics of participants during the last quarter of 1974 would be reflected in different distributions of these characteristics as compared with other study periods. As already noted,

Table 4. Percentage of women participating in HIP breast cancer screening program in response to 1 letter, 2 letters, or additional efforts, by time of entry into study

Time of entry into study	Number screened	1 letter only ¹	2 letters only	Additional efforts ²
December 1973–March 1974	1,577	51	25	24
April–June 1974	2,559	42	30	28
July–September 1974	1,970	35	35	30
October–December 1974	1,019	45	33	23
January–March 1975	1,454	49	28	23
April–June 1975	2,516	52	26	21
Total	11,095	45	29	25

¹ Includes women telephoned in reference to questions they posed at time of their response to the 1 letter.

² Includes women receiving only 3 letters as well as women receiving 2 or 3 letters plus at least 1 telephone call.

NOTE: Percentages for some periods may not total 100 because of rounding.

Table 5. Percentage of women participating in HIP breast cancer screening program, by time of entry into study and religious preference

<i>Time of entry into study</i>	<i>Number screened</i> ¹	<i>Protestant</i>	<i>Catholic</i>	<i>Jewish</i>	<i>Other, none, or unknown</i>
December 1973–March 1974	1,574	30	36	27	7
April–June 1974	2,556	31	36	25	9
July–September 1974	1,958	30	40	24	7
October–December 1974	1,000	29	38	25	8
January–March 1975	1,110	31	36	25	8
Total	8,198	30	37	25	8

¹Includes only women who entered study in periods specified and who had been examined by March 31, 1975.

NOTE: Percentages for some periods may not total 100 because of rounding.

Table 6. Percentage of women participating in HIP breast cancer screening program, by time of entry into study and educational level

<i>Time of entry into study</i>	<i>Number screened</i> ¹	<i>Did not complete high school</i>	<i>Completed high school</i>	<i>Some college or completed college</i>	<i>Level unknown</i>
December 1973–March 1974	1,574	44	21	32	2
April–June 1974	2,556	45	23	30	2
July–September 1974	1,958	44	25	30	2
October–December 1974	1,000	42	24	32	2
January–March 1975	1,110	42	24	32	2
Total	8,198	44	23	31	2

¹Includes only women who entered study in periods specified and who had been examined by March 31, 1975.

NOTE: Percentages for some periods may not total 100 because of rounding.

demographic data were obtained from questionnaires about health administered at the screening sessions. These data are available only through the first quarter of 1975.

Among all women screened through March 1975, 30 percent were Protestant, 37 percent Catholic, and 25 percent Jewish. This distribution was about the same through all study periods, including the last quarter of 1974 (table 5).

The educational level of screenees was also about the same during each of the five study periods; no differences were observed during the last quarter of 1974 (table 6).

Sixty-three percent of the screenees examined through March 1975 were white and 32 percent black. Here, too, there were no important temporal differences in the racial distribution of the screenees; each period had about the same proportion of white and black screenees as any other period (table 7).

Family income levels were distributed in about the same way in each of the five study periods. The levels of those screened in the last quarter of 1974 did not differ significantly from those of women screened during other study periods (table 8).

In short, in spite of the increased percentage of women participating during the last quarter of 1974, the demographic characteristics of the women who were screened in this period were about the same

Table 7. Percentage of women participating in HIP breast cancer screening program, by time of entry into study and race

<i>Time of entry into study</i>	<i>Number screened</i> ¹	<i>White</i>	<i>Black</i>	<i>Other and unknown</i>
December 1973–March 1974 ..	1,574	64	32	4
April–June 1974 ..	2,556	61	33	5
July–September 1974	1,958	63	32	5
October–December 1974 ...	1,000	63	32	5
January–March 1975	1,110	65	31	5
Total ...	8,198	63	32	5

¹Includes only women who entered study in periods specified and who had been examined by March 31, 1975.

NOTE: Percentages for some periods may not total 100 because of rounding.

Table 8. Percentage of women participating in HIP breast cancer screening program, by time of entry into study and annual family income

<i>Time of entry into study</i>	<i>Number screened¹</i>	<i>Less than \$7,000</i>	<i>\$7,000– \$11,000</i>	<i>\$11,000– \$16,000</i>	<i>More than \$16,000</i>	<i>Unknown</i>
December 1973–March 1974	1,574	18	24	25	24	10
April–June 1974	2,556	18	23	24	22	13
July–September 1974	1,958	18	21	24	23	15
October–December 1974	1,000	18	24	25	23	11
January–March 1975	1,110	15	24	24	26	11
Total	8,198	18	23	24	23	12

¹ Includes only women who entered study in periods specified and who had been examined by March 31, 1975.

NOTE: Percentages for some periods may not total 100 because of rounding.

as those of the women screened in the other study periods. Even among those groups of women who in other studies have shown a greater tendency to participate in screening programs, the percentage of participation was not significantly greater than among other women in the study group. Neither was the increase in participation any greater among those demographic groups that in the past have been less likely to participate in such preventive health programs.

Changes in the response to screening invitations.

Measures of the effort needed to gain the women's participation in the breast screening program were used to gauge to what extent the women might have been sensitized or alerted to the program through the attention given to the breast surgery of Mrs. Ford and Mrs. Rockefeller. It has already been noted that during late 1974 the proportion of women participating in the screening in response to the first letter increased and continued to increase through later study periods. We examined differences among demographic groups in their tendency to reply to the first letter, comparing them at points

in time before and after late 1974. The relationship of the variables of age, religious preference, education, income, and race to women's tendency to respond to screening invitations was also examined. In an earlier, similar breast screening study, these variables were found to be related to participation in screening, readiness to respond to screening invitations, or both (5). The emphasis in our analysis was on comparisons between the periods December 1973 through March 1974 and January 1975 through March 1975.

In the period December 1973 through March 1974, no consistent differences were observed among age groups in the proportion of women participating in response to the first letter. Similarly, in early 1975 there were no consistent differences in this respect by age group. Thus, the events of late 1974 did not appear to affect any one age group any differently from any other in terms of their response to the first letter (table 9).

When the women of the various study periods were classified according to religious preference, 61 percent of the Jewish women screened from December 1973 through March 1974 responded to the first

Table 9. Distribution of women requiring only 1 letter before participating in HIP breast cancer screening program, by time of entry into study and age group

<i>Time of entry into study</i>	<i>45–49 years</i>		<i>50–54 years</i>		<i>55–59 years</i>		<i>60–64 years</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
December 1973–March 1974	315	49	201	54	155	52	137	53
April–June 1974	457	42	257	41	188	40	167	44
July–September 1974	260	33	164	34	145	37	115	38
October–December 1974 ...	180	44	107	42	102	49	66	47
January–March 1975	296	49	200	50	123	48	89	47
April–June 1975	487	52	333	50	282	54	216	55
Total	1,955	45	1,262	45	995	46	790	47

NOTE: Table includes women telephoned in reference to questions they posed at time of their response to the 1 letter.

letter of invitation, as compared with 49 percent of the Protestant women and 47 percent of the Catholic women. By early 1975 the differential between Jewish and Protestant women had increased: 71 percent of the Jewish women and 52 percent of the Protestant women responded to the first letter (table 10).

From December 1973 through March 1974, differences among the women of various educational levels in their tendency to participate in response to a first letter were small. Fifty percent of those who did not complete high school and 54 percent of those with some college training required only one letter. In early 1975, 55 percent of the women who had not completed high school and 65 percent of the college-trained responded to one letter (table 11).

Similar patterns were also observed in comparisons among income groups in the two periods. In late 1973 and early 1974, 51 percent of the women screened whose family incomes were under \$7,000 responded to the first letter and 52 percent of those with family incomes exceeding \$16,000. In early 1975, the first letter won a response from 52 percent

of the lowest income group screened and from 65 percent of those who had family incomes exceeding \$16,000 (table 12).

Finally, 48 percent of the black women screened and 54 percent of the white women returned the first letter in late 1973 and early 1974. For the first quarter of 1975, the comparable figures were 49 percent of the black women screened and 64 percent of the white (table 13).

What appears to have happened in early 1975 is that women from those demographic groups that have generally been observed to be more responsive to preventive health programs showed an increased sensitivity to screening invitations, a responsiveness that was evidenced by their readiness to respond more quickly to the initial effort to contact them. It is noteworthy that the response rate in early 1975 had returned to a level only slightly higher than that in December 1973 through March 1974.

It may be that the events of late 1974 increased the sensitivity to screening for breast cancer among women who were already more likely than others to respond to the screening program.

Table 10. Distribution of women requiring only 1 letter before participating in HIP breast cancer screening program, by time of entry into study and religious preference

<i>Time of entry into study</i>	<i>Protestant</i>		<i>Catholic</i>		<i>Jewish</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
December 1973–March 1974	230	49	265	47	256	61
April–June 1974	314	40	357	39	315	50
July–September 1974	182	31	257	33	189	41
October–December 1974	120	41	135	35	153	62
January–March 1975	179	52	234	58	194	71
Total	1,025	41	1,248	41	1,107	54

NOTE: Includes only women who entered study in specified periods and were examined by March 31, 1975. Excludes "Other, none, and unknown" category. See footnote 1, table 4, for definition of "1 letter."

Table 11. Distribution of women requiring only 1 letter before participating in HIP breast cancer screening program, by time of entry into study and educational level

<i>Time of entry into study</i>	<i>Did not complete high school</i>		<i>Completed high school</i>		<i>Some college or completed college</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
December 1973–March 1974	347	50	162	48	276	54
April–June 1974	446	39	245	42	359	46
July–September 1974	265	31	177	36	223	39
October–December 1974	178	42	107	45	160	50
January–March 1975	254	55	157	59	229	65
Total	1,490	41	848	44	1,247	49

NOTE: Includes only women who entered study in specified periods and were examined by March 31, 1975. Excludes "Unknown" category. See footnote 1, table 4, for definition of "1 letter."

Table 12. Distribution of women requiring only 1 letter before participating in HIP breast cancer screening, by time of entry into study and annual family income

Time of entry into study	Less than \$7,000		\$7,000–\$11,000		\$11,000–\$16,000		More than \$16,000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
December 1973–March 1974	145	51	190	51	212	54	194	52
April–June 1974	155	33	254	43	271	45	276	49
July–September 1974	120	34	146	36	166	36	162	36
October–December 1974	67	38	114	48	121	49	112	50
January–March 1975	86	52	151	56	174	65	188	65
Total	573	40	855	45	944	48	932	49

NOTE: Includes only women who entered study in specified periods and were examined by March 31, 1975. Excludes "Unknown" category. See footnote 1, table 4, for definition of "1 letter."

Table 13. Distribution of women requiring only 1 letter before participating in HIP breast cancer screening, by time of entry into study and race

Time of entry into study	White		Black	
	Number	Percent	Number	Percent
December 1973–March 1974	542	54	236	48
April–June 1974	695	44	323	38
July–September 1974	459	37	185	30
October–December 1974	307	49	120	38
January–March 1975	461	64	165	49
Total	2,464	48	1,029	39

NOTE: Includes only women who entered study in specified periods and were examined by March 31, 1975. Excludes "Other and unknown" category. See footnote 1, table 4, for definition of "1 letter."

Discussion and Conclusions

There are few preventive health programs against which the increases in participation in breast cancer screening observed in our study can be measured. However, on the basis of reports by Ubell on the effect of mass communications on health behavior (6) the increase from 46 percent participation in the third quarter of 1974 to 54 percent participation in the final quarter of that year seems substantial. Anti-smoking campaigns, for example, and other public information campaigns appear to have exerted only a small effect on public awareness, and that effect, moreover, has been confined to select audiences.

In general, it has been found in most studies of mass communications that an increased awareness of new information is most likely to occur among

persons already concerned and interested in the topics presented by the mass media (7). In contrast, reports concerning the breast surgery of Mrs. Ford and Mrs. Rockefeller apparently reached all levels of the female population in our study. The overall increase in participation rates was fairly uniform among all age groups, among women living both near to and far from the screening centers, among the well educated and the poorly educated, and among high and low income groups. Thus, in this instance, it appears that mass communications truly had a mass effect.

The relatively short-lived effects that these widely publicized events had on participation levels conforms to experience with other similar events, including periodic ones, such as election campaigns. Reduced participation levels persisted even beyond the periods reported here. During the period July 1975 through March 1976 (when the study ended), they even fell below earlier levels, dropping to 43.5 percent at the LaGuardia center and 36.8 percent at the Beth Israel center. Even the resulting increased sensitivity to direct mail efforts that the HIP women in the higher socioeconomic groups exhibited is consistent with expectations based on other research showing the effects of mass communication.

If the research observations presented in this paper are to encourage desirable preventive health practices, these observations will have to be placed in the context of the situation in which they occurred. The widely publicized events that we studied were spontaneous and unanticipated. Also, at the time they occurred, no special appeal was made to the women in the study to come and be screened. Nevertheless, these events, coupled with direct mailed requests to the women in the study, resulted in significant increases in response rates almost uniformly across

population subgroups. The women were informed about the opportunity to have a free breast examination at about the same time that they were hearing a great deal about breast cancer. The letters informed them of what they could do and how they could do it.

Mass immunization programs such as the poliomyelitis vaccination program and the recent ill-fated swine influenza vaccination campaign may benefit most from this kind of approach. They are one-time programs, not requiring sustained efforts to contact the public or to immunize people more than once. Screening programs in which limited numbers of people can be handled at one time and that require repeated, periodic visits can gain far less from highly publicized events even if these events are related to the screening programs.

Nevertheless, agencies concerned with preventive health programs may find that an unexpected event that is widely publicized and related to their program can be useful in furthering it. These events can provide what Ubell has described as an "alerting function," particularly in respect to those health problems like breast cancer that may be associated with taboos related to sex or to the dreadful word "cancer." The surgery of Mrs. Ford and Mrs. Rockefeller may have removed some of the barriers to open discussion of this health problem. It may be a long time before we again see bare female breasts on prime-time television, but they were seen in late 1974 in demonstrations of breast self-examination.

Finally, health agencies need to hold themselves

in readiness to respond to publicized events with health implications. And their response should include not only informational messages, but also, as suggested by Mendelsohn (1), Ubell (6), and others, specific activities related to the agency's program. In the case of breast cancer, for example, it is not enough to inform the target audience of the value of asymptomatic screening. Information must also be available on where a woman may be screened and how she can get there. Unless the target audience is afforded some means for taking direct action, the messages and events may have little impact and will soon be forgotten and meaningless.

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SYNOPSIS

FINK, RAYMOND (New York Medical College), ROESER, RUTH, VENET, WANDA, STRAX, PHILIP, VENET, LOUIS, and LACHER, MORTIMER: *Effects of news events on response to a breast cancer screening program. Public Health Reports, Vol. 93, July-August 1978, pp. 318-327.*

An opportunity to examine the effects of significant, widely reported events on participation in a breast cancer screening program was presented when countrywide public attention was called to breast cancer by reports of the breast surgery of the wives of the President and Vice President of the United States. These events occurred in September and October 1974 while a breast cancer

screening program was underway in the Health Insurance Plan of Greater New York. The research design of this program permitted measurements to be made of the participation of the plan's members in the screening before, during, and after these famous mastectomies and of the participants' characteristics during different periods of the research program.

In late 1974, when there was great mass media emphasis on breast cancer, participation rates in the breast cancer screening program increased significantly. In the study periods immediately following, however, participation rates declined to previous levels. The increase in participation

rates in late 1974 was fairly uniform among all demographic groups, whether classified by age, education, income, race, or religion.

In addition to increases in the participation rate associated with the events of late 1974, there was also an increased tendency among women who were screened to respond readily to mailed invitations to appear for screenings. This increase in sensitivity to efforts to win their participation was more pronounced among those groups that this study and other studies have shown are more likely to participate in preventive health programs and to respond more readily to requests to participate.